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Maine Tree Fruit Newsletter

Thursday, June 21, 2018 Vol 25:8

Thinning & Hort notes from Highmoor Farm

Based on observations at Highmoor Farm, chemical thinning was successful for apple varieties, and possibly too successful on others. Honeycrisp and Pioneer Mac were less responsive to the two thinner sprays, whereas, regular McIntosh seems a little overthinned. Our plan to thin aggressively seems to have worked well this year, so I expect not to hand thin apples this year. June drop should take care of anything that still needs crop load reduction, and should begin soon. Unless we get substantial rainfall soon, I expect an obvious June drop this year.

European plums have a good crop, so fruit thinning by hand is needed on most varieties. Because of winter injury on most Japanese plums, they will not need hand thinning this year. American plums have a good crop this year and have already been thinned. Peach trees look weakened by the harsh winter, so I expect a light crop of small fruit.

Sweet cherries are just starting to color, so it is time to put in place some type of bird repellent, reflective tape or bird netting.

Apple Scab Update

Primary apple scab spore releases are done for locations south of Bangor. For locations north of Bangor, the rain forecast for Sunday and Monday, June 24-25, will bring the final scab ascospore releases.

Scab levels in 20 orchards, (most with multiple blocks) checked over the past week are low in most cases, but with enough exceptions to demonstrate that the apple scab fungus is able to propagate itself even in a very dry spring. Another note of caution comes from the fact that making an accurate assessment requires continuing to look for, and not finding, scab lesions on foliage until AFTER the date when all of the 1st generation lesions have had time to appear. In addition, keep checking until most of the 1st generation infections would have had time to become visible as 2nd generation lesions if they had been able to cause a new wave of infections.

It would be prudent to insure that protective scab fungicide coverage was no more than about 14 days old before each rain event until you have checked late enough to be sure that primary scab infections were successfully controlled. They may seem overly cautious given that there are no more primary scab spores to be released. What you do NOT want is to discover that scab infections have taken hold in the orchard during a period when foliage was not protected. At typical June temperatures, there is a 9-10 day lag between a rain event that allows conidia to start new infections and the date by which those infections start to become visible.

At Highmoor Farm in Monmouth, about 80% of the year's 1st generation scab infections had enough time to begin appearing by Monday June 18. But only about 10% of the scab infection potential had time to appear as 2nd generation lesions by that date. By June 29, about 95-100% (1st gen.) and 80% (2nd gen.) of primary scab infection potential will have had enough time to become visible. Dates for other locations as far north as Newport are similar.

On small trees, you can presumably make an accurate assessment of scab infection when 100% of 1st generation lesions have had time to appear. However, on larger trees, scab is most likely to get started in the upper portion of the canopy where obtaining good fungicide coverage is more difficult. It is impossible to check that foliage from the ground so lesions in the upper canopy can remain undetected until they manifest themselves by spreading conidia that cause 2nd generation infections in the lower canopy.

By the time you discover the presence of 1st generation scab by finding 2nd generation scab infections, each of those 1st generation lesions will have had time to replicate itself many times over through secondary (conidial) infections. Each 1st generation lesion can produce more than 40,000 conidial spores. Even in the most extreme circumstances only a small portion of those spores would successfully launch 2nd generation lesions. But with a ratio of 40,000 to 1, only a tiny portion of conidia from 1st generation lesions are needed to amplify a scab outbreak.

Extending that logic, why not recommend keeping a cautious scab fungicide interval until 100% of 2nd generation lesions have had time to appear? I do not have data to prove or explain why apple scab seems to show up by the date that 80% of 2nd generation lesions have had time to appear. I cannot even say that it is specifically true, just that it seems that way. Perhaps toughening foliage and hotter temperatures act to slow down the spread of scab as the number of weeks past Petal Fall increases. Or perhaps by July clean orchards stay clean and orchards with scab control problems have had enough time to reveal their status for other reasons.

The scab lesions detected in orchards checked this week include some grizzled old spots that appear to be dying and thus are less of a threat to produce copious conidia. But we also found tender young baby scab lesions just beginning to pump out conidia.

What to do if you find active scab lesions

Captan plus hot dry weather is an effective way to reduce conidial production from existing lesions. That can be sufficient where the scab count is not too high. There are no exact numbers on this but for sake of argument let's say less than 20 scabby leaves out of 100 shoots and fruit clusters. (The sampling protocol involves looking at ~ 15 leaves per shoot/cluster, so a 100 shoot/cluster sample represents about 1500 leaves). The captan + hot weather approach requires at least one follow-up spray about 7-10 days later. Syllit has better antispore activity than captan. . Syllit is effective against scab, but it does not provide protection against sooty blotch – flyspeck, summer fruit rots, or other diseases. Syllit is also prone to resistance and so at least a half rate of captan should be combined with Syllit.

If the scab count is higher than roughly 20 leaves per 100 shoots, or if the weather is not hot and dry but turns wet, (which would be welcome at this point regardless of the implications for scab management), then more intense scab suppression is needed. That could be achieved by making two applications of a DMI or strobilurin fungicide with a one-week interval in between to kill the scab growing inside the leaf (which captan does not do). The SDHI fungicides may also have this ability, given their postinfection activity being somewhat similar to the DMIs I suspect they do, but I do not know if that has been firmly established.

All of the translaminar postinfection fungicides (DMI, strobilurin, SDHI) that work inside the leaf are susceptible to selecting for resistance in the scab population. The fastest way to do that is to apply them onto numerous scab lesions. However, using these materials to shut down an incipient scab outbreak in the early stages is a lot less risky than using them after a scab outbreak already has momentum. In addition, combining captan or another protectant fungicide with the DMI/stroby/SDHI goes a long way to reducing the risk of pushing the scab population towards resistance. Thus the very strong recommendation to always combine the postinfection materials with a protectant fungicide when applying them to burn out existing scab lesions.

Fire blight

Scattered fire blight strikes have appeared in several Maine orchards over the past week, usually in place with known fire blight pressure. Blossom infections from the high-risk infection period on May 26, and from a second period of high-risk infection weather culminating with rain on June 4, have now had time to become evident. Secondary shoot blight from blossom infections could appear between now and June 30. The level of fire blight is enough to make growers having experience with this disease glad they applied streptomycin during bloom, but not enough to call this a bad fire blight year. Quick sanitation to remove strikes as soon as they are found is important to prevent further spread.

Powdery Mildew

What appears to be early stage Powdery mildew was found in a Maine orchard this week. This disease has rarely been a significant problem in Maine, and it probably will remain a curiosity this year as well. Even though it is a fungus, powdery mildew is favored by lack of rain. If it does become more prevalent, the DMI/stroby/SDHI fungicides all provide good to excellent control. Captan is not effective against powdery mildew. A good rain this weekend might set it back. Where abundant, powdery can cause loss of foliage and create skin scarring on the fruit.

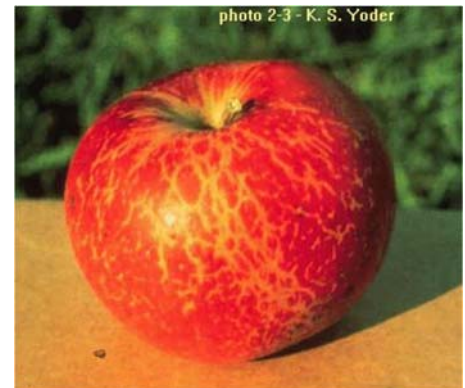


Photo credits: top - anonymous x2, bottom - Renae Moran x 2, Keith Yoder.

Plum curculio

Plum curculio should have been killed by insecticide applications in the 20 days following Petal Fall. They completed immigration from overwintering site into the orchard by June 10 at Highmoor Farm in Monmouth. But if you did not kill them, then the females will keep cutting apples to lay eggs for next 2-3 weeks.

Codling Moth

First generation codling moth larvae are beginning to hatch. In most orchards, repeated insecticide applications in the weeks after Petal fall, as well as use of Sevin (carbaryl) for thinning, provides ancillary codling moth control. But where supplemental codling moth control is needed, the optimum time for the first of two applications in the Monmouth area is June 20, with a follow-up application 10-14 days later. Where a single application is sufficient, the optimum date is at 20% egg hatch around June 28. See Ag-Radar for localized dates.

Apple maggot

Apple maggot flies will begin emerging around July 14. Traps can be purchased from Great Lakes IPM Supply <http://www.greatlakesipm.com/> and elsewhere:

Pomological Society Summer Meeting

The Maine State Pomological Society (MSPS) Summer Meeting will be held on Wednesday July 18 at Dole's Orchard, 187 Doles Ridge Road, Limington ME, dolesorchard.com

Registration is \$15 for MSPS members, \$20 for nonmembers. Preregistration not required but please RSVP to Pam St. Peter at pamela.stpeter@maine.edu, or (207) 933-2100. See attached brochure for more info.

- 9:15 am Opening Remarks Joel Gilbert, President of Maine State Pomological Society
- 9:30 am Linda Titus, AgMatters - Food Safety Modernization Act Update.
- 9:45 am Dr. Jim Schupp, Penn State University. Make the leap to high density orchards.
- 10:30 am Break
- 10:45 am Dr. David Handley, UMaine. Strawberries and other small fruit.
- 11:15 am Dan Libby, Dan Libby Refrigeration, Heating and Air Conditioning. Refrigeration for farm stands and produce.
- 11:45 am Jason Perkins, Allagash Brewing. Using Maine fruit to produce great brews.
- 12:00 pm Lunch
- 1:00 pm Earl and Nancy Bunting. Dole's Orchard Farm tour: strawberries, raspberries, blueberries, apples, peaches, plums, cherries.
- Howard Boyden, Orchard Equipment Supply Company (OESCO). Labor saving devices for the orchard.
- Horticulture and pest management: J. Schupp, R. Moran, D. Handley, G. Koehler
- 3:30 pm Adjourn

Orchard calendar

Dates are based on Highmoor Farm in Monmouth. Dates for other sites at <https://extension.umaine.edu/ipm/ag-radar-apple-sites/>

mid-June to mid-July	<p>Most effective timing for controlling persistent weeds (bindweed, brambles, dandelion, goldenrod, vetch etc.) with Gramoxone (paraquat) or Rely (glufosinate).</p> <p>Green apple aphid populations typically become more apparent at this time. Effective biocontrol in most orchards limits threat to young trees for which maximum growth is desired. Treatment threshold on established trees is if more than 50% of shoots are infested AND less than 20% of aphid colonies have predators.</p>
June 16, Sat	ERM threshold increases to 2.5 mites per leaf, or mites present on 59% of middle-aged fruit cluster leaves, until July 16. See ERM sampling table for optimum scouting intervals.
June 18, Mon	<p>Roundheaded apple tree borers begin laying eggs.</p> <p>Young trees or other trees not receiving insecticide for other pests need to have protection by a physical barrier or trunk insecticide on or before this date.</p>
June 18, Mon	Date of final primary scab ascospore release ('final' defined as best guess that 99+% of ascospores have been released, with high probability that at least 95% have been released.)
June 19, Tue	<p>Recommended timing to begin calcium foliar sprays at two week intervals to prevent early summer cork spot and late summer bitter pit before harvest, and to decrease senescent breakdown in storage. Increased calcium level may also decrease chance of storage scald.</p> <p>Where zinc is deficient, second of two zinc chelate applications recommended for 2nd cover spray after petal fall.</p>
June 20, Wed	<p>1st generation Codling moth 3% egg hatch. Codling moth control typically provided by insecticide applications against plum curculio and apple maggot. If separate codling moth control is needed, and Bt or other material requiring repeated applications for control is being used, this is best date for first application. See Codling moth tables for follow-up spray dates to maintain protection through 1st generation CM egg hatch.</p> <p>No reliable threshold: Go by block history. Another risk indicator is pheromone trap capture above 5 to 14 codling moths per week.</p>
June 21, Thu	<p>Second generation European red mite nymphs appear.</p> <p>An important monitoring period is between now and June 28 to detect above threshold population before 3rd generation eggs are laid.</p>
June 21, Thu	Date canker blight symptoms on vegetative shoots near overwintered fire blight cankers would show
June 22, Fri	If using pheromone traps to time sampling for 2nd generation Spotted tentiform leafminer , time to set traps. First trap capture expected in 7 days.
June 23, Sat	Date by which 50% of primary scab potential has had time to begin appearing as 2nd generation lesions on foliage and fruit. Finding more than 5 scab-infected leaves per 100 fruit clusters or vegetative shoots in a commercial orchard suggests need for fungicide applications to suppress spore production, and to protect fruit and foliage for at least 4 weeks until active scab lesions exhaust their supply of spores. It also indicates need to identify cause for breakdown in protection. Common causes are inadequate fungicide coverage, timing, or dosage.

June 24, Sun	Date shoot blight symptoms would become obvious if fire blight blossom infection occurred on May 26.
June 28, Thu	1st generation Codling moth - best date for single spray (estimated 20% egg hatch) where separate control needed. No reliable threshold: Go by block history. Another risk indicator is pheromone trap capture above 5 to 14 codling moths per week.
June 28, Thu	Earliest 2nd generation European red mite adults begin laying 3rd generation eggs.
June 29, Fri	Date by which ALL primary scab infection periods have had time to begin appearing as 1st generation lesions. Finding scab infections on fewer than 5 leaves per 100 clusters/shoots suggests that primary scab control was successful. If there is doubt about primary scab control, continue sampling for 2nd generation lesions before relaxing protection against secondary scab. Light infestation of 1st generation lesions can be difficult to detect. Infections delayed but not killed by fungicide application or partial resistance of older leaves may appear later. Finding more than 5 leaves with fresh scab lesions per 100 fruit clusters and vegetative shoots in a commercial orchard at this time suggests that fungicide selection and spray intervals need to be adjusted to suppress spore production, and need to protect fruit and foliage for at least 4 weeks until active scab lesions exhaust their supply of spores.

Highmoor Farm Apple Bid

The University of Maine Highmoor Farm is inviting interested parties to place bids on our 2018 apple crop from the orchard listed on back of this page. Picking is defined as removing all marketable fruit on the tree. The successful bidder will pick all specified blocks under the following conditions:

- Pickers must be supervised
- Pickers & supervisors must respect flagged research trees
- No fruit may be removed from research trees without permission

Please submit both an orchard run price and a juice price. Half of the total payment must be paid by March 1, 2019. Highmoor Farm reserves the right to reject any or all bids.

Bids should be mailed or delivered in a sealed envelope marked "Apple Bid", and will be opened at 1 p.m., June 30, 2018.

Mail bid to: Highmoor Farm, C/O Greg Koller, PO Box 179, Monmouth ME 04259.
For more information: (207) 933-2100 or gkoller@maine.edu

Please write your bid offers below:

1) Orchard run per bushel: _____

2) Juice per bushel: _____

Name (Print): _____

Address: _____

Phone Number: _____

Signature: _____

HIGHMOOR FARM COMMERCIAL ORCHARDS				
ORCHARD NAME	CULTIVAR/ROOTSTOCK	ACRES	SPACING TREE x ROW	TREES/ACRE
75 B I	MACSPUR	1.8	12X22	165
75 B II	MACSPUR	1.2	12X22	165
75 B III	CORT./MM 111	0.30	12X22	165
99	PIONEER MAC, CORT., ROYAL	2.5	6X14	519
94/95	M26	3.5	6x13	559
92 VIG.	LIBERTY/MM106,75MN27-	0.30	14X22	141
79 BI	RED MAC/M7	0.2	12X18	202
03	Golden Delicious	.6	8x16	
85	CORT., MACSPUR, SM. GOLDENS/M7A	1.5	25X25	70
94 GALA	SEMI-DWARF GALA	0.40	13 X 20	161
98	MACOUN/B.9 AND CORTLAND/M26	0.5	6 X 18	403
95 DWARF	CORTLAND, MACS, & MACOUNS	0.8	5 X 11	454
TOTAL ACRES:		13.6		
NOTES: First number of orchard name is the year of planting. Liberty blocks are not normally sprayed				

Closing Words

"My father gave me the greatest gift anyone could give another person, he believed in me."

"I asked a ref if he could give me a technical foul for thinking bad things about him. He said, of course not. I said, well, I think you stink. And he gave me a technical. You can't trust 'em."

"If you laugh, you think, and you cry, that's a full day. That's a heck of a day. You do that seven days a week, you're going to have something special."

"Don't give up. Don't ever give up."

"I just got one last thing, I urge all of you, all of you, to enjoy your life, the precious moments you have. To spend each day with some laughter and some thought, to get you're emotions going."

~ Jim Valvano. 1946-1993.

Coach of the 1983 North Carolina State University NCAA basketball championship team, in a speech shortly before his death from cancer.

[Glen W. Koehler](#)

Associate Scientist IPM

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Orono, ME 04473-1295

<http://pmo.umext.maine.edu/apple/>

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Extension Tree Fruit Specialist

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Monmouth ME 04259-0179

<http://extension.umaine.edu/fruit/>



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